STANDARD FORM NO. 64

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Office Memorandum [redacted] UNITED STATES GOVERNMENT

TO : Given H. Dugger, Director, Safety and Fire Protection Division, SFOO

DATE: January 6, 1953

FROM : Seth R. Woodruff, Jr., Field Manager, Las Vegas Field Office

SUBJECT: RAD-SAFE CONTROLS

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SYMBOL: NEO

The following information regarding Rad-Safe practices and policies is submitted in accordance with telephonic request from your office on December 17, 1952, to Mr. E. C. Althaus of this office.

1. Operation Ranger

   a. This test series was a "quickie" based at Indian Springs Air Field, and involving a total of less than 600 persons. Tests being on a single site were simple, and recovery operations limited. A maximum number of 100 contractor personnel were given physicals which did not include chest X-rays. Blood samples were taken and flown back to H-Division at Los Alamos for analysis. Rad-Safe operations were conducted by a mixed military-civilian group under H-Division auspices. Dosage limit for a 10-week period is understood to have been 3.0 r.

2. Operation Buster/Jangle

   a. Physicals which did not include chest x-rays were given at Mercury by an H-Division Medical team headed by Dr. Harry O. Whipple. Laboratory work on blood tests and urinalyses were done at the site. Scientific personnel in general had received their physical examinations prior to arrival, and the estimated 150 examinations were confined to personnel of Haddock Engineering Company.

   b. Dosage rates were 3.0 r for a 10-week period.

   c. Rad-Safe operations were handled by a mixed group of LASL, Health Division, and Military Rad-Safe people.

   d. Tests were conducted at four different sites and possibly due to the types of experiments much friction ensued between Rad-Safe and construction forces. Urgent construction and support requirements for succeeding tests existed in close proximity to those just conducted because of close shot scheduling and it was difficult to obtain firm Rad-Safe policy. Prior to the Jangle

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operation there had been no occasion during continental tests to perform decontamination services. However, on Thanksgiving Day, 1951, it became necessary to decontaminate highly contaminated fall-out as a result of an earlier shot from around "Ground Zero" for the final shot. Haddock personnel, by dozing and hand cleaning, reduced the radiation level from 800 mr/hr to less than 30 mr/hr.

e. Interim Rad-Safe operations between the Buster/Jangle and Tumbler/Snapper series were performed by a single non-commissioned officer who monitored for occasional recovery teams and policed hot areas to prevent unauthorized exposure.

3. Operation Tumbler/Snapper

a. Unlike previous continental tests, Rad-Safe operations were conducted exclusively by the military and paragraph 21 of the "Handbook of Atomic Weapons for Medical Officers" became the standard for Rad-Safe physical examinations in accordance with memorandum dated March 6, 1952, to the Director, OTO, from the Test Director, a copy of which is attached. In summary the following standards were set forth:

(1) Dr. Clark recommended yearly physical examinations for Nevada Proving Ground personnel working continually at the site prior to entrance to contaminated areas, as well as for Test Organization personnel who participate on a continuing basis. This recommendation differed from paragraph 21 of the Handbook, the requirements of which indicate physical exams should be repeated at periods in excess of 3 months.

(2) Examination will include complete blood count, urinalysis, and chest x-ray.

(3) Disqualifying conditions included:

All exposed wounds.
Total white count below 4000 or above 12000.
Persistently abnormal differential count.
Total red count below 3.5 million or above 6.5 million.
Any evidence of previous radiation injury which is considered as disqualifying by the medical examiner.

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b. Vehicle decontamination limits were maintained at 2 mr/hr and a detector was operated at the security gate north of Mercury to turn back "hot" vehicles.

c. Rad-Safe operations were well planned with regard to interruption of construction activity and less friction resulted than on any previous test.

4. Roll-up Subsequent to Tumbler/Snapper

a. Decontamination of permanent test areas to permit replacement of expendable structures for 1953 operations made necessary much more elaborate Rad-Safe operations than for any previous interim period. The Department of Defense furnished an officer and approximately 15 enlisted men for monitoring and vehicle decontamination. This Rad-Safe group operated under the administrative control of the Detachment Commander, NPG, and the technical control of the Field Manager.

Dr. Tom White, Mr. Barker, and Mr. Chelius of the LASL Health Group have been consulted by the Field Manager in certain instances where the Rad-Safe officer was unable to act because of lack of specialized equipment or insufficient experience.

b. Rad-Safe limits used during this period were established from information contained in the following correspondence, copies of which are attached:

(1) Letter to Adm. George P. Kraker, Deputy Manager, Santa Fe Operations Office from John C. Bugher, MD, Director, Division B&M, Washington, D.C. dated October 1, 1952.

The advisory committee for B&M in its meeting of September 12, 1952, approved the use of a permissible exposure of 3.9 r of gamma radiation for test site personnel without regard to the rate at which the dose is accumulated provided this exposure represents the total integrated dose over a period of 13 consecutive weeks. This exposure is permissible for all operations of the AEC, in-plant as well as for bomb tests.

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(2) Letter to Seth R. Woodruff, Jr., Field Manager, from John C. Bugher, Division B&M, Washington, D. C., dated July 18, 1952, and confirming Colonel Hartgering's letter of June 25, 1952.

Permissible radiation dosage for roll-up operations was specified as 3.0 r gamma only for a 10-week period with areas showing greater than 10 mr/hr being found as contaminated and requiring presence of a monitor for film badges and the other accessories for work in contaminated areas.

(3) Letter dated June 25, 1952, from Colonel Hartgering, MC, AFSWP, to Seth Woodruff.

Acceptable dosages as follows:

Total of 3 r gamma only, for a 10-week period. Ten (10) mr/hr non-contamined area. Area with instances of greater than 10 mr would be considered as contaminated and a monitor would be present during operations in this area.

Two (2) mr level for vehicle and equipment contamination. Col. Hartgering noted that this complies with normal peace time tolerances of .3 r per week.

At the present time Rad-safe physicals are required when it is necessary for personnel to work in areas that have a background of 100 mr or greater. The areas that have been decontaminated now have a background of approximately 10 mr. Film badges are required for personnel working in these areas.

Since January 1, 1952, 838 Rad-safe physicals have been given. The cost of giving a physical which includes the examination, time lost by the employee and transportation costs from Mercury to Las Vegas and return, is approximately $40.00 per person.

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It is estimated that approximately 3 to 4 thousand physicals would have to be given per year if physicals would be required for all persons working in areas that have a background of 10 mr.

Enclosures:
1. Cy memo dtd 3/6/52 to OTO fr Test Director
2. Cy ltr to SFOO fr. Bugher, dtd 10/1/52
3. Cy ltr to Woodruff fr Bugher dtd 7/18/52
4. Cy ltr fr Hartgering to Woodruff dtd 6/25/52

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